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EXAMINER	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/705,356	JIANG, SAM SHIAW-SHIANG	
	Examiner	Art Unit	
	DeWanda Samuel	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 November 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. **Claims 9-10 and 16-17** are rejected under 35 U.S.C. 102(e) as being anticipated by Yi et al. (US Patent 7,054,270).

With regard to claim 9, Yi et al. discloses having a *modified MRW procedure to prepare a status PDU with a MRW SUFI, which is used by a sender to inform a receiver about moving its reception window boundaries or these SDUs should be discarded,* Yi et al. discloses having a method utilizing MRW (move receiving window) technique with PDU within the MRW SUFI (move receiving window super field)...further "transmitting discard information about the discarded RLC SDU to the receiving side entirety when the transmission MRW (move receiving window) mode indicator is configured (column line 6 line 61-64).

wherein the procedure sets up the fields of a MRW SUFI, such as Type, LENGTH, SN_MRWi, SN_ MRW_{LENGTH} (the last SN_MRWi field) and NLENGTH

according (fig.3 and column 9 line 47-67); Yi et al. discloses having in fig. 3 a MRW SUFI with a type , LENGTH, SN_MRWi , SN_MRW_{LENGTH} (the last SN_MRW field) and NLENGTH (fig.3 and column 9 line 47-67).

and each PDU has been assigned a corresponding sequential number (SN), Yi et al. discloses the a sequence number mode of a PDCP layer is set, the PDCP layers of transmission and receiving sides reconcile the sequence numbers of PDCP PDUs (i.e. RLC SDU, column 9 line 6-9)...also in fig.5 Yi et al. discloses the each PDUs is assigned corresponding sequential numbers.

wherein the method comprises the steps of: at the receiver: receiving a status PDU with a MRW SUFI from the sender; checking the value of the LENGTH field and discarding PDUs accordingly; Yi et al. discloses that the receiving side have received the MRW SUFI from the transmitting side the receiving side also discards the discards the PDUs PDU0 to PDU6. The PDUs are those which have sequence numbers equal to or lower than "7" (which is the parameter SN_MRW included in the MRW SUFI (column 12 line 40-47).

if the value of the N_{LENGTH} *field is equal to 0; reassembling data from the first data octet of the PDU having its SN equal to SN* MRW_{LENGTH}*;* Yi et al discloses when the $N_{LENGTH}=0$ (column 11 line 19)...a N_{LENGTH} equal to 0 indicates that the last SDU ended in the PDU with sequence number $SN\_MRW_{LENGTH-1}$ and that the first data octect in

the PDU with sequence number SN_MRW_{LENGTH} is the first data octet to be reassembled next (column 11 line 33-37).

if the value of the N_{LENGTH} field is not equal to 0; discarding data octets in the PDU having its SN equal to SN_MRW_{LENGTH} up to and including the data octet indicated by the first "Length Indicator" field of the same PDU; Yi et al. discloses when the N_{LENGTH} is greater than 0 the receiver preferably discards the first N_{LENGTH} LI (length indicator) and the corresponding data octets in the PDU with sequence number SN_MRW_{LENGTH} (column 11 line 24-27).

and reassembling data from the succeeding data octet after the last discarded data octet of the PDU having its SN equal to SN MRW_{LENGTH}. Yi et al. discloses a N_{LENGTH} equals to 0 indicates that the last SDU ended in the PDU with the sequence number SN_MRW_{LENGTH}-1 and that the first data octet in the PDU with the sequence number SN_MRW_{LENGTH} is the first data octet to be reassembled next (column 11 line 33-37).

With regard to claim 10, Yi et al. teaches the method recited in claim 9. *Wherein checking the value of the LENGTH field and discarding PDUs accordingly;* Yi discloses having a MRW SUFI that includes location information of each of the discarded and a value parameter LENGTH... in fig. 5 the LENGTH becomes "4" which is represents four parameters of SN_MRW1 and SN_MRW4 and they in turn represent the sequence numbers of the PDUs... (column 11line 55-63)... in addition, it is only

necessary to inform the receiving side ("receiver") of the location information of the last discarded one of the discarded SDUs (column 12 line 28-31)...the receiving side , having received the MRW SUFI discards PDUs...(column 12 line 41-42).

further comprising the steps of: if the value of the LENGTH field is equal to 0; Yi et al. discloses checking if the if the LENGTH field is set to "0000" (column 10 line 52-53).

processing the received MRW SUFI as if there is only one SN_MRWi field, SN MRW_{LENGTH}; Yi et al. discloses when the last transmitted SDU exceeds or is out of the range of the transmission window however, the field of the parameter LENGTH is set to "0000"...when the discarded information of the transmitting side transmitted to the receiving side, the transmitting side radio system transmits the information of the discarded SDUs, either entirely or in part, to the receiving side according to whether the transmission MRW mode indicator is configured for its RLC layer by the RLC layer (column 10 47-60).

otherwise if the value of the LENGTH field is not equal to 0; Yi et al. discloses having a value of the parameter LENGTH is "1" (fig. 6).

processing the received MRW SUFI as if there are LENGTH number of SN_MRWi fields, SN_MRWI up to SN MRW_{LENGTH}; and discarding PDUs up to and including the PDU having its SN equal to (SN MRWLENGTH -1). Yi et al. discloses the receiving side

having received the MRW SUFI discards PDUs PDU0 to PDU6. The discarded PDUs are those which have sequence numbers equal to or lower than "7" which is the parameter SN_MRW included in the MRW SUFI (column 12 line 41-47).

With regard to claim 16, Yi et al. discloses *A receiver using a modified MRW procedure to receive a status PDU with a MRW SUFI, which is sent by a sender to inform the receiver about moving its reception window boundaries or these SDUs should be discarded,* Yi et al. discloses "transmitting discard information about the discarded RLC SDU to the receiving side entirety when the transmission MRW (move receiving window) mode indicator is configured.

wherein the procedure sets up the fields of a MRW SUFI, such as Type, LENGTH, SN_MRWi, SN_MRWLENCTH (the last SN_MRWi field) and NLENCTH accordingly; Yi et al. discloses having in fig. 3 a MRW SUFI with a type , LENGTH, SN_MRWi , SN_MRW_{LENGTH} (the last SN_MRW field) and NLENGTH.

and each PDU has been assigned a corresponding sequential number (SN), Yi et al. discloses the a sequence number mode of a PDCP layer is set, the PDCP layers of transmission and receiving sides reconcile the sequence numbers of PDCP PDUs (i.e. RLC SDU, column 9 line 6-9)..also in fig.5 Yi et al. discloses the each PDUs is assigned corresponding sequential numbers.

wherein the receiver comprises: means for receiving a status PDU with a MRW SUFI from the sender;means for checking the value of the LENGTH field and discarding PDUs accordingly; Yi et al. discloses that the receiving side have received the MRW SUFI from the transmitting side the receiving side also discards the discards the PDUs PDU0 to PDU6. The PDUs are those which have sequence numbers equal to or lower than "7" (which is the parameter SN_MRW included in the MRW SUFI (column 12 line 40-47).

means for checking if the value of the N_{LENGTH} field is equal to 0;means for reassembling data from the first data octet of the PDU having its SN equal to SN_MRW_{LENGTH}; Yi et al discloses when the N_{LENGTH}=0 (column 11 line 19)...a N_{LENGTH} equal to 0 indicates that the last SDU ended in the PDU with sequence number $SN\_MRW_{LENGTH-1}$ and that the first data octect in the PDU with sequence number SN_MRW_{LENGTH} is the first data octet to be reassembled next (column 11 line 33-37).

means for checking if the value of the N_{LENGTH} field is not equal to 0;means for discarding data octets in the PDU having its SN equal to SN_MRW_{LENGTH} up to and including the data octet indicated by the first "Length Indicator" field of the same PDU; Yi et al. discloses when the N_{LENGTH} is greater than 0 the receiver preferably discards the first N_{LENGTH} LI (length indicator) and the corresponding data octets in the PDU with sequence number SN_MRW_{LENGTH} (column 11 line 24-27).

and means for reassembling data from the succeeding data octet after the last discarded data octet of the PDU having its SN equal to SN_MRW_{LENGTH}. Yi et al. discloses a N_{LENGTH} equals to 0 indicates that the last SDU ended in the PDU with the sequence number SN_MRW_{LENGTH}-*1 and that the first data octet in the PDU with the sequence number* SN_MRW_{LENGTH} is the first data octet to be reassembled next (column 11 line 33-37).

With regard to claim 17, Yi et al. teaches the receiver recited in claim 16. *Wherein means for checking the value of the LENGTH field and discarding PDUs accordingly;* Yi discloses having a MRW SUFI that includes location information of each of the discarded and a value parameter LENGTH...in fig. 5 the LENGTH becomes "4" which is represents four parameters of SN_MRW1 and SN_MRW4 and they in turn represent the sequence numbers of the PDUs... (column 11line 55-63)...in addition, it is only necessary to inform the receiving side ("receiver") of the location information of the last discarded one of the discarded SDUs (column 12 line 28-31)...the receiving side , having received the MRW SUFI discards PDUs...(column 12 line 41-42).

further comprising: means for checking if the value of the LENGTH field is equal to 0; Yi et al. discloses checking if the if the LENGTH field is set to "0000" (column 10 line 52-53).

means for processing the received MRW SUFI as if there is only one SN_MRWi field, SN_MRWLENGTH; Yi et al. discloses when the last transmitted SDU exceeds or is out of the range of the transmission window however, the field of the parameter LENGTH is set to "0000"...when the discarded information of the transmitting side transmitted to the receiving side, the transmitting side radio system transmits the information of the discarded SDUs, either entirely or in part, to the receiving side according to whether the transmission MRW mode indicator is configured for its RLC layer by the RLC layer (column 10 47-60).

means for checking if the value of the LENGTH field is not equal to 0; Yi et al. discloses having a value of the parameter LENGTH is "1" (fig. 6).

means for processing the received MRW SUFI as if there are LENGTH number of SN_MRWi fields, SN_MRWI up to SN MRWLENGTH; Yi et al. discloses the receiving side having received the MRW SUFI discards PDUs PDU0 to PDU6. The discarded PDUs are those which have sequence numbers equal to or lower than "7" which is the parameter SN_MRW included in the MRW SUFI (column 12 line 41-47).

and means for discarding PDUs up to and including the PDU having its SN equal to (SN MRW_{LENGTH} *- 1).* Yi et al. discloses having a last SDU ended in the PDU with sequence number SN MRW_{LENGTH} –1 to be discarded (column 11 line 28-36).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 1-8 and 11-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yi et al. (US Patent 7,054,270) in view of Torsner et al. (PG PUB 2003/0169741).

With regard to claim 1, Yi et al. discloses having a *modified MRW procedure to prepare a status PDU with a MRW SUFI, which is used by a sender to inform a receiver about moving its reception window boundaries or discarding certain SDUs,* Yi et al. discloses having a method for transmitting data from the RLC layer in radio communication (title). Yi et al. further discloses "transmitting discard information about

the discarded RLC SDU to the receiving side entirety when the transmission MRW (move receiving window) mode indicator is configured.

wherein the procedure sets up the fields of a MRW SUFI, such as Type, LENGTH, SN_MRW, SN_MRW$_{LENGTH}$ (the last SN_MRW field) and NLENGTH accordingly (fig.3 and column 9 line 47-67); Yi et al. discloses having in fig. 3 a MRW SUFI with a type , LENGTH, SN_MRWi , SN_MRW$_{LENGTH}$ (the last SN_MRW field) and NLENGTH.

and each PDU has been assigned a corresponding sequential number (SN), Yi et al. discloses the a sequence number mode of a PDCP layer is set, the PDCP layers of transmission and receiving sides reconcile the sequence numbers of PDCP PDUs (i.e. RLC SDU, column 9 line 6-9)..also in fig.5 Yi et al. discloses the each PDUs is assigned corresponding sequential numbers.

wherein the method comprises the steps of: at the sender:
triggering the MRW procedure upon a plurality of trigger events; Yi et al. discloses the a sequence number mode of a PDCP layer is set, the PDCP layers of transmission and receiving sides reconcile the sequence numbers of PDCP PDUs (i.e. RLC SDU). Therefore, the MRW mode set indicator should be configured (column 9 line 6-10)

checking the status of a "Send MRW" and acting accordingly; Yi et al. discloses in fig. 7 a flow chart that has a instruction to check the transmission MRW (move receiving window) indicator 740 and further instructions are given according to the result of the status.

setting up the SN_MRW_{LENGTH} field for the last discarded SDU and the N_{LENGTH} field accordingly; Yi et al. discloses "the parameter SN_MRW_{LENGTH} which represents the sequence number of the PDU which belongs to (indicates) an end of the last discarded SDU (column 10 line 331-34)... N_{LENGTH} which indicates that the last discarded SDU corresponds sequentially to the SDU in the indicated PDU (column 10 line 35-36).

Yi et al. does not discloses *while there exists a SN_MRWi field, other than the SN_MRW_{LENGTH} field, containing the same value as the SN_MRW_{LENGTH} field has, deleting the SN_MRWi field containing the same value as the SN_MRW_{LENGTH} field has;* Torsner et al. discloses having a stall avoidance mechanism and sequence ambiguity in an automatic repeat request protocol (title). Torsner et al. discloses if the data unit sequence numbering scheme goes from 0 to 7 and then repeats –modulo 8. In fig. 5A the transmitter transmit a first set of eight data units having sequence numbers 0-7 by time T0. In. By the time T1, the transmitter has transmitted a second set of eight data units also having sequence numbers 0-7. In fig. 5B, the receiver has only received data units 1,2,3, and 5 at time T0 and is missing data units 0, 4, 6 and 7...at T0 data unit 0 is deemed permanently missing and removed (page 4 paragraph 41 line 1-28)

Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention was made to have discloses having a method for transmitting data from the RLC layer in radio communication (title) as taught by Yi et al. which include stall avoidance mechanism and sequence ambiguity in an automatic repeat request protocol (title) as taught by Torsner to prevent delays and increase throughput rate.

setting N_{LENGTH} equal to 1; Yi et discloses setting N_{LENGTH} to "1" (column 12 line 1-3).

setting up the LENGTH field accordingly. Yi et al. further discloses setting up the LENGTH to 1 (column 12 line 34-35).

With regard to claim 2, in combination Yi et al. and Torsner et al. teaches the method recited in claim 1. *Wherein one of the trigger events is when a time out occurs;* Yi et al. discloses in fig. 7 an instruction to check if the PDU transmission number that receives the MAX 720 then the SDU 10 and SDU13 may be discarded if the previously set transmission time in the timer for the SDU 10 and SDU13 expires or the prescribed number of transmission is limited (column 11 line 43-48)...also in fig.7 the MRW mode indicator is configured.

With regard to claim 3, in combination Yi et al. and Torsner et al. teaches the method recited in claim 1. *Wherein one of the trigger events is that the number of retry of sending a PDU exceeds the maximum number of retransmission;* Yi et al. discloses in fig. 7 an instruction to check if SDU 10 and SDU13 may be discarded if the previously

set transmission time in the timer for the SDU 10 and SDU13 expires or the prescribed number of transmission is limited (column 11 line 43-48)...also in fig.7 the MRW mode indicator is configured.

With regard to claim 4, in combination Yi et al. and Torsner et al. teaches the method recited in claim 1. *Wherein setting up the SN M_RW$_{LENGTH}$ field for the last discarded SDU and the N$_{LENGTH}$ field accordingly;* Yi et al. discloses "the parameter SN_MRW$_{LENGTH}$ which represents the sequence number of the PDU which belongs to (indicates) an end of the last discarded SDU (column 10 line 331-34)... N$_{LENGTH}$ which indicates that the last discarded SDU corresponds sequentially to the SDU in the indicated PDU (column 10 line 35-36).

further comprises the steps of: if the last discarded SDU ends in a PDU containing the "Length Indicator" of the last discarded SDU and the PDU contains no new SDU; Yi et al. discloses the N$_{LENGTH}$ indicates which LI (length Indicator) in the PDU with sequence number SN_MRW$_{LENGTH}$ corresponds to the last SDU (service data unit) to be discarded in the receiver (column 11 line 30-33).

setting SN_MRW$_{LENGTH}$ equal to (the SN of the PDU containing the "Length Indicator" of the last discarded SDU+l); Yi et al. discloses preferably SN_MRWi is the sequence number of the PDU that contains the length indicator(LI) of the ith SDU to be discarded in the receiver (column 11 line 15-19).

setting N_{LENGTH} equal to 0; Yi et al. discloses having N_{LENGTH} equal to 0 (column 11 line 33).

otherwise if the PDU contains at least one segment of a new SDU; Yi et al. discloses having N_{LENGTH} equal to 0... and the first data octet in the PDU with sequence number SN_MRW_{LENGTH} is the first data octet to be reassembled next (column 11 line 33-37).

setting SN_MRW_{LENGTH} equal to (the SN of the PDU containing the "Length Indicator" of the last discarded SDU); Yi et al. discloses preferably SN_MRWi is the sequence number of the PDU that contains the length indicator(LI) of the ith SDU to be discarded in the receiver (column 11 line 15-19).

and setting N_{LENGTH} equal to 1; Yi et al. discloses having N_{LENGTH} greater than 0 (column 11 line 24).

With regard to claim 5, , in combination Yi et al. and Torsner et al. teaches the method recited in claim 1. *Wherein setting up the LENGTH field accordingly;* Yi et al. discloses having a LENGTH parameter (column 10 line 1).

further comprising the following steps of: if there is only one SN M_RWi field in the MRW SUFI to be sent and the SN of the SN_MRWi field extends above the configured transmission window;

setting LENGTH equal to 0; Yi et al. discloses in fig. 6 the format of one SN M_RWi in MRW SUFI and in claim 5 Yi et al. discloses that if the last discarded SDU transmitted

to the receiving side exceeds a range of transmission window the LENGTH is set to "0000"(column 10 line 50-53 and column 11 line 1-5).

and otherwise, setting LENGTH equal to the number of SN_MRWi fields. Yi et al. discloses the Length field is used to indicate the number of SN_MRWi fields in the super-field of type MRW. The values "0001 through "1111" 1 through 15 SN_MRW I respectively (column 11 line 1-5).

With regard to claim 6, in combination Yi et al. and Torsner et al. teaches the method recited in claim 1. *Wherein checking the status of the "Send MRW"* ; Yi et al. discloses when the a transmission mode MRW is configured, such as a SEND MRW, a SN_MRW is configured is used to indicate the end of each discarded SDU. That is the number of SN_MRW fileds equals the number of SDUs discarded by the MRW SUFI (column 11 line 6-11).
further comprising the steps of: if a "Send MRW" flag is configured; Yi et al. discloses if the MRW mode set indicator ("SEND MRW flag") is configured (column 9 line 6).

if there is more than 15 discarded SDUs; Yi et al. further discloses having a LENGTH field is... is used to indicate the number of SN_MRW fields in the super-field of type MRW(move receiving window). The values "0001" through "1111" indicate 1 through 15 SN_MRWi respectively (column 11 line 1-5).However, it is known in the art that sequence numbers can range from 0 to 4095.

setting up the MRW SUFI for the first 15 discarded SDUs; Yi et al. discloses the Length field is used to indicate the number of SN_MRWi fields in the super-field of type MRW. The values "0001 through "1111" 1 through 15 SN_MRW I respectively (column 11 line 1-5).

handling the rest discarded SDUs accordingly; Yi et al. discloses "... if the receiving side requests transmission when the discard information has been entirely or partially transmitted to the receiving side, the transmitting side sequentially transmits the numbered RLC PDUs to the receiving side (column 13 line 46-67)."

and assigning each SN_MRWi with the SN of each corresponding discarded SDU. Yi et al. discloses "...if at least portions of RLC SDU0 to RLC SDU4 fail to be transmitted to the receiving side, the transmitting side sequentially numbers the sequence numbers of the PDUs corresponding to the SDUs to be transmitted subsequently thereafter from the sequence number of the presently-not-transmitted PDU...if the receiving side requests transmission when the discard information has been entirely or partially transmitted to the receiving side, the transmitting side sequentially transmits the numbered RLC PDUs to the receiving side (column 13 line 46-67)."

With regard to claim 7, , in combination Yi et al. and Torsner et al. teaches the method recited in claim 6. *Wherein handling the rest discarded SDUs accordingly;* Yi et al. discloses "...if at least portions of RLC SDU0 to RLC SDU4 fail to be transmitted to

the receiving side, the transmitting side sequentially numbers the sequence numbers of the PDUs corresponding to the SDUs to be transmitted subsequently thereafter from the sequence number of the presently-not-transmitted PDU... if the receiving side requests transmission when the discard information has been entirely or partially transmitted to the receiving side, the transmitting side sequentially transmits the numbered RLC PDUs to the receiving side (column 13 line 46-67)."

further comprising the steps of: if the PDU that contains the Length Indicator of the fifteenth discarded SDU contains all the rest discarded SDUs and at least one segment of an SDU that is not discarded; Yi et al. discloses that the SN_MRW is the sequence number of the PDU that contains the length indicator (LI) of the ith SDU to be discarded in the receiver (column 11 line 15-18)...the SN_MRW fields in the super-field of type MRW. The values "0001" through "1111" indicate 1 through 15 SN_MRWi respectively (column 11 line1-3). Yi et al. further, discloses

neglecting the rest discarded SDUs; Yi et al. discloses if the transmission MRW (move receiving window) mode indicator is not configured, the transmitting side transmits a portion of the discard information to the receiving side (column 13 line 38-456).

and otherwise, handling the rest discarded SDUs in another MRW procedure. Yi et al. discloses if the transmission MRW (move receiving window) mode indicator is not configured, the transmitting side transmits a portion of the discard information to the receiving side (column 13 line 38-456).

With regard to claim 8, in combination Yi et al. and Torsner et al. teaches the method recited in claim 1. *Wherein the length of the N_{LENGTH} field can be one bit.* Yi et al. discloses having 4 bits N_{LENGTH} field. Yi et al. does not disclose having N_{LENGTH} field can be one bit. Yi et al. discloses the claimed invention except for 1 bit N_{LENGTH} field . It would have been obvious to one having ordinary skill in the art at the time the invention was made to reduce the bits, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

With regard to claim 11, Yi et al. discloses having *a sender using a modified MRW procedure to prepare a status PDU with a MRW SUFI to inform a receiver about moving its reception window boundaries or discarding certain SDUs,* Yi et al. discloses having a method for transmitting data from the RLC layer in radio communication (title). Yi et al. further discloses "transmitting discard information about the discarded RLC SDU to the receiving side entirety when the transmission MRW (move receiving window) mode indicator is configured.

wherein the procedure sets up the fields of a MRW SUFI, such as Type, LENGTH, SN_ MRWi, SN_MRW_{LENGTH} (the last SN_MRWi field) and N_{LENGTH} accordingly (fig.3

and column 9 line 47-67); Yi et al. discloses having in fig. 3 a MRW SUFI with a type , LENGTH, SN_MRWi , SN_MRW_{LENGTH} (the last SN_MRW field) and NLENGTH.

and each PDU has been assigned a corresponding sequential number (SN), Yi et al. discloses the a sequence number mode of a PDCP layer is set, the PDCP layers of transmission and receiving sides reconcile the sequence numbers of PDCP PDUs (i.e. RLC SDU, column 9 line 6-9)..also in fig.5 Yi et al. discloses the each PDUs is assigned corresponding sequential numbers.

wherein the sender comprises:

means for triggering the MRW procedure upon a plurality of trigger events;

Yi et al. discloses the a sequence number mode of a PDCP layer is set, the PDCP layers of transmission and receiving sides reconcile the sequence numbers of PDCP PDUs (i.e. RLC SDU). Therefore, the MRW mode set indicator should be configured (column 9 line 6-10)

means for checking the status of a "Send MRW" and acting accordingly; Yi et al. discloses in fig. 7 a flow chart that has a instruction to check the transmission MRW (move receiving window) indicator 740 and further instructions are given according to the result of the status.

means for setting up the SN_MRW$_{LENGTH}$ field for the last discarded SDU and the NLENGTH field accordingly; Yi et al. discloses "the parameter SN_MRW$_{LENGTH}$ which represents the sequence number of the PDU which belongs to (indicates) an end of the last discarded SDU (column 10 line 331-34)... N$_{LENGTH}$ which indicates that the last discarded SDU corresponds sequentially to the SDU in the indicated PDU (column 10 line 35-36).

Yi et al. does not discloses *while there exists a SN_MRWi field, other than the SN_MRW$_{LENGTH}$ field, containing the same value as the SN_MRW$_{LENGTH}$ field has, deleting the SN_MRWi field containing the same value as the SN_MRW$_{LENGTH}$ field has;* Torsner et al. discloses having a stall avoidance mechanism and sequence ambiguity in an automatic repeat request protocol (title). Torsner et al. discloses if the data unit sequence numbering scheme goes from 0 to 7 and then repeats –modulo 8. In fig. 5A the transmitter transmit a first set of eight data units having sequence numbers 0-7 by time T0. In. By the time T1, the transmitter has transmitted a second set of eight data units also having sequence numbers 0-7. In fig. 5B, the receiver has only received data units 1,2,3, and 5 at time T0 and is missing data units 0, 4, 6 and 7...at T0 data unit 0 is deemed permanently missing and removed (page 4 paragraph 41 line 1-28)

Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention was made to have discloses having a method for transmitting data from the RLC layer in radio communication (title) as taught by Yi et al. which include

stall avoidance mechanism and sequence ambiguity in an automatic repeat request protocol (title) as taught by Torsner to prevent delays and increase throughput rate.

setting N_{LENGTH} equal to 1; Yi et discloses setting N_{LENGTH} to "1" (column 12 line 1-3).

setting up the LENGTH field accordingly. Yi et al. further discloses setting up the LENGTH to 1 (column 12 line 34-35).

With regard to claim 12, in combination Yi et al. and Torsner et al. teaches the method recited in claim 11. *Wherein means for setting up the SN_MRW_{LENGTH} field for the last discarded SDU and the N_{LENGTH} field accordingly;* Yi et al. discloses "the parameter SN_MRW_{LENGTH} which represents the sequence number of the PDU which belongs to (indicates) an end of the last discarded SDU (column 10 line 331-34)... N_{LENGTH} which indicates that the last discarded SDU corresponds sequentially to the SDU in the indicated PDU (column 10 line 35-36).

further comprises: means for checking if the last discarded SDU ends in a PDU containing the "Length Indicator" of the last discarded SDU and the PDU contains no new SDU; Yi et al. discloses the N_{LENGTH} indicates which LI (length Indicator) in the PDU with sequence number SN_MRW_{LENGTH} corresponds to the last SDU (service data unit) to be discarded in the receiver (column 11 line 30-33).

means for setting SN_MRW_{LENGTH} equal to (the SN of the PDU containing the "Length Indicator" of the last discarded SDU+l); Yi et al. discloses preferably SN_MRWi is the sequence number of the PDU that contains the length indicator(LI) of the ith SDU to be discarded in the receiver (column 11 line 15-19).

means for setting N_{LENGTH} equal to 0; Yi et al. discloses having N_{LENGTH} equal to 0 (column 11 line 33). ;

means for checking if the PDU contains at least one segment of a new SDU; Yi et al. discloses having N_{LENGTH} equal to 0... and the first data octet in the PDU with sequence number SN_MRW_{LENGTH} is the first data octet to be reassembled next (column 11 line 33-37).

means for setting SN_MRW_{LENGTH} equal to (the SN of the PDU containing the "Length Indicator" of the last discarded SDU); Yi et al. discloses preferably SN_MRWi is the sequence number of the PDU that contains the length indicator(LI) of the ith SDU to be discarded in the receiver (column 11 line 15-19).

and means for setting N_{LENGTH} equal to 1; Yi et al. discloses having N_{LENGTH} greater than 0 (column 11 line 24).

With regard to claim 13, in combination Yi et al. and Torsner et al. teaches the method recited in claim 11. *Wherein means for setting up the LENGTH field accordingly further comprising:*
means for checking if there is only one SN_MRWi field in the MRW SUFI to be sent and the SN of the SN_MRWi field extends above the configured transmission window;

means for setting LENGTH equal to 0; Yi et al. discloses in fig. 6 the format of one SN M_RWi in MRW SUFI and in claim 5 Yi et al. discloses that if the last discarded SDU transmitted to the receiving side exceeds a range of transmission window the LENGTH is set to "0000"(column 10 line 50-53 and column 11 line 1-5).

and otherwise, means for setting LENGTH equal to the number of SN_MRWi fields. Yi et al. discloses the Length field is used to indicate the number of SN_MRWi fields in the super-field of type MRW. The values "0001 through "1111" 1 through 15 SN_MRW I respectively (column 11 line 1-5).

With regard to claim 14, in combination Yi et al. and Torsner et al. teaches the method recited in claim 11. *W*herein means for checking the status of the "Send MRW" ; Yi et al. discloses when the a transmission mode MRW is configured, such as a SEND MRW, a SN_MRW is configured is used to indicate the end of each discarded SDU. That is the number of SN_MRW fileds equals the number of SDUs discarded by the MRW SUFI (column 11 line 6-11).

further comprising: means for checking if a "Send MRW" flag is configured; Yi et al. discloses if the MRW mode set indicator ("SEND MRW flag") is configured.

means for checking if there is more than 15 discarded SDUs; Yi et al. further discloses *setting up the MRW SUFI for the first 15 discarded SDUs;* Yi et al. discloses the Length field is used to indicate the number of SN_MRWi fields in the super-field of type MRW. The values "0001 through "1111" 1 through 15 SN_MRW I respectively (column 11 line 1-5).

means for setting up the MRW SUFI for the first 15 discarded SDUs; Yi et al. discloses the Length field is used to indicate the number of SN_MRWi fields in the super-field of type MRW. The values "0001 through "1111" 1 through 15 SN_MRW I respectively (column 11 line 1-5).

means for handling the rest discarded SDUs accordingly; Yi et al. discloses "... if the receiving side requests transmission when the discard information has been entirely or partially transmitted to the receiving side, the transmitting side sequentially transmits the numbered RLC PDUs to the receiving side (column 13 line 46-67)."

and means for assigning each SN_MRWi with the SN of each corresponding discarded SDU. Yi et al. discloses "...if at least portions of RLC SDU0 to RLC SDU4 fail

to be transmitted to the receiving side, the transmitting side sequentially numbers the sequence numbers of the PDUs corresponding to the SDUs to be transmitted subsequently thereafter from the sequence number of the presently-not-transmitted PDU... if the receiving side requests transmission when the discard information has been entirely or partially transmitted to the receiving side, the transmitting side sequentially transmits the numbered RLC PDUs to the receiving side (column 13 line 46-67)."

With regard to claim 15, in combination Yi et al. and Torsner et al. teaches the method recited in claim 14. *Wherein means for handling the rest discarded SDUs accordingly;* Yi et al. discloses "... if at least portions of RLC SDU0 to RLC SDU4 fail to be transmitted to the receiving side, the transmitting side sequentially numbers the sequence numbers of the PDUs corresponding to the SDUs to be transmitted subsequently thereafter from the sequence number of the presently-not-transmitted PDU... if the receiving side requests transmission when the discard information has been entirely or partially transmitted to the receiving side, the transmitting side sequentially transmits the numbered RLC PDUs to the receiving side (column 13 line 46-67)."

further comprising: means for checking if the PDU that contains the Length Indicator of the fifteenth discarded SDU contains all the rest discarded SDUs and at least one segment of an SDU that is not discarded; Yi et al. discloses that the SN_MRW

is the sequence number of the PDU that contains the length indicator (LI) of the ith SDU to be discarded in the receiver (column 11 line 15-18)...the SN_MRW fields in the super-field of type MRW. The values "0001" through "1111" indicate 1 through 15 SN_MRWi respectively (column 11 line1-3). Yi et al. further, discloses

means for neglecting the rest discarded SDUs; Yi et al. discloses if the transmission MRW (move receiving window) mode indicator is not configured, the transmitting side transmits a portion of the discard information to the receiving side (column 13 line 38-456).

and otherwise, means for handling the rest discarded SDUs in another MRW procedure. Yi et al. discloses if the transmission MRW (move receiving window) mode indicator is not configured, the transmitting side transmits a portion of the discard information to the receiving side (column 13 line 38-456).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DeWanda Samuel whose telephone number is (571) 270-1213. The examiner can normally be reached on Monday- Thursday 8:30-5:30 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Q. Ngo can be reached on (571) 272-3139. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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5/20/2007

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